

FACT SHEET FOR STATE WASTE DISCHARGE PERMIT ST 6003

FACILITY NAME: SUNLAND WATER DISTRICT

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INTRODUCTION

This fact sheet is a companion document to the draft State Waste Discharge Permit No. ST 6003 . The Department of Ecology (Department) is proposing to issue this permit, which will allow discharge of wastewater to waters of the state of Washington. This fact sheet explains the nature of the proposed discharge, the Department's decisions on limiting the pollutants in the wastewater, and the regulatory and technical bases for those decisions.

Washington State law [Revised Code of Washington (RCW) 90.48.080 and 90.48.162] requires that a permit be issued before discharge of wastewater to waters of the state is allowed. Regulations adopted by the state include procedures for issuing permits [Chapter 173-216 Washington Administrative Code (WAC)], technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC) and water quality criteria for ground waters (Chapter 173-200 WAC). They also establish the basis for effluent limitations and other requirements which are to be included in the permit.

This fact sheet and draft permit are available for review by interested persons as described in Appendix A--Public Involvement Information.

The fact sheet and draft permit have been reviewed by the Washington State Department of Health and by the Permittee. Errors and omissions identified in these reviews have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Changes to the permit will be addressed in Appendix D--Response to Comments

<u>GENERAL INFORMATION</u>	
Applicant	Sunland Water District
Facility Name and Address	Sunland Water District, 137 Fairway Drive, Sequim, Washington 98382
Type of Treatment System	Sequencing Batch Reactor, chlorine disinfection, Class D reclaimed water spray irrigation
Location of Mechanical Portion of Treatment Works	Latitude: 48° 06' 59" N Longitude: 123° 05' 47" W.
Legal Description of Application Area	SW ¼ section 5, township 30N, range 3W approx. 30 acres Latitude: 48° 07' 00" N. Longitude: 123° 05' 51" W.
Contact at Facility	Name: Bill Thomsen, Operator Telephone #: (360) 683-3880
Responsible Official	Name: R. L. "Dick" Stuhr Title: Manager Telephone #: (360) 683-3905 FAX #: (360) 683-3324

BACKGROUND INFORMATION

DESCRIPTION OF THE COLLECTION SYSTEM, TREATMENT SYSTEM, AND LAND

HISTORY

The Sunland facility began operation in 1979 as a facultative lagoon. The facility received an extensive upgrade starting in 1999 by replacing the lagoons with Sequencing Batch Reactors (SBRs), adding an optional filtration system and enlarging existing polishing pond which was relined with a synthetic liner. Two aerobic digesters and a reed bed were added for processing biosolids. The original permit has never been reissued but was renewed without change before the facility renovation took place. The Sunland Water District Board of Commissioners intention in upgrading the facility has been to achieve Class A quality reclaimed water. However, the facility has not been able to achieve Class C standards on a regular basis. The Department had several concerns regarding portions of the design. The facility was rebuilt without the Department's approval of engineering plans and specifications. A facility engineering report amendment is currently being reviewed that would work towards Class A quality reclaimed water.

COLLECTION SYSTEM STATUS

The Sunland development consists of 950 house lots wrapped around the links of an 18-hole golf course. At the present time there are 714 connections. The collection system was installed in sections starting in 1977, mostly of 8-inch PVC pipe. There are four pump stations. Each station has two pumps: one station has a pair of two-HP pumps and the others have pairs of five-HP pumps. Because it has been several years since the system has been examined for inflow and infiltration (I/I), the new permit will require an I/I examination and report.

TREATMENT PROCESSES

The SBRs came on-line in December 1999. A facultative lagoon remains in place from the old system that has never had old sludge removed. During the start-up of the SBRs in 1999, some problem waste was discharged to the old lagoon. The old overflow from the lagoon is returned to the headworks for further treatment. The facultative lagoons receive only waste sludge from the aerobic digesters.

Influent enters the plant at a bar screen and passes through a grit chamber and a Parshall flume. At the time this permit was written the Parshall flume did not have an ultrasonic flow meter. Flow was being measured by pumping records at the main lift station #1. The installation of a continuous reading meter will be required in the permit. After flow enters the SBRs, is treated, and allowed to settle, the liquid is decanted during a clarifying cycle to an equalization basin. At this point, a flocculent feed pump is in place that can add alum. At the time of writing the permit there was no mixing tank for adding the flocculent to the effluent. The effluent flows through a magnetic meter and a fabric filtration unit. The effluent is then sent to the chlorine contact chamber for disinfection followed by a reclaimed water storage pond and then to a pumping station. The water storage pond has about six days of storage capacity at average daily flow. The effluent is pumped and sprayed on a restricted access pasture. A schematic of the facility is provided in Appendix C.

At the time of writing the permit there has been difficulty with several aspects of the operation in meeting Class A reclaimed water as intended. The polymer mixing and feeding has never been tried and there are areas through out the plant where lower quality water can cross contaminate the higher class. These cross connections allow contamination of the wastewater that could be used for Class A wastewater with lower class water. For example, at the present time, there is only one storage pond for reclaimed water and only one wet well used for pumping reclaimed water regardless of class. Planned upgrades should take care of

the problem by adding separate pumping systems and storage ponds. The facility has had problems disinfecting the wastewater in order to meet total coliform limits above Class D quality.

Class D reclaimed water cannot be applied through out the year. There may be times when a crop cannot take-up the nutrients or the water which would otherwise run off or infiltrate to ground water. Class D reclaimed water should therefore be limited to March through October in the Sequim area based on rainfall and soil type in the sprayfield (Holtrop, 2003; Carey, 1995). The Permittee should contract with the Clallam Conservation District to better establish agronomic application rates of water in inches per acre and nutrients in pounds of nitrogen per acre. The facility does not have enough storage in order to be able to store Class D water for four months. However, the facility should eventually be able to meet the storage requirements when they build a Class A storage pond. Due to its higher level of treatment, Class A reclaimed water can be applied to the pasture and allowed to infiltrate to groundwater at any time of year. A study done by Ecology in 1995 to estimate the contamination potential from the Old Sunland system stated that approximately 62 percent of the estimated nitrogen leaching to ground water occurred during the dormant season (Carey, 1995).

Because the Permittee intends to continue applying Class D water, the Permittee will be required to develop an "Irrigation and Crop Management Plan" as described in Guidelines for Preparation of Engineering Reports for Industrial Wastewater Land Application System (Ecology, 1993).

There needs to be a hydraulic loading analysis that addresses: monthly water use and water balance showing precipitation (inches); evapotranspiration (inches); wastewater applied (inches); supplemental water, if any (inches); and total water applied (inches).

Nutrient loading should address: monthly crop uptake (lbs/acre) of total nitrogen; total nitrogen applied (lbs/acre); and total nitrogen stored in the soil and retained in the crop (lbs/acre). Total nitrogen refers to total Kjeldahl N plus nitrate+nitrite-N.

As a result of these inconsistencies with meeting Class D and A reclaimed water standards, the facility will be given interim limits to eventually meet Class D and Class A reclaimed water. At least six months of continuous compliance with Class A standards will be required before Class A water may be used on the golf course.

The facility uses the activated sludge process, which for a plant this size requires a lead operator with a Group II certification. If the plant achieves reclaimed water status, which is viewed as tertiary treatment, a facility operator that is in charge of daily operations will be required to have a Group III certification. There are currently two operators at the facility that have Group II certification. One of the operators was due to take the Group III operators' license in the Fall of 2002. The facility is staffed from 7:00 a.m. to 3:30 p.m., Monday through Friday, and one operator is present four hours per day on weekend days.

There are no industrial or commercial users of this system. The customers using the system are residential homes incorporated into a golf course development setting.

The facility is in the process of preparing a facility plan for upgrade to Class A reclaimed water. The facility plan was received by the Department on June 3, 2002. Reviews by the Department of Ecology and Health have shown that there are several deficiencies in the proposed design that must be corrected before the plan could be approved.

The Sunland Water District uses a restricted sprayfield for discharge of effluent that is leased through a long term agreement. The lease allows use of land the sewage treatment plant is located on plus 22 acres used for spray irrigation. The lease agreement was submitted with the 1999 application.

DISTRIBUTION SYSTEM (SPRAYFIELD) AND GEOLOGY

The effluent is presently sent to a sprayfield pasture adjacent to the treatment plant. The main purpose for using the sprayfield is disposal of the effluent. There are 22 acres of hay that are bailed and removed during the growing season. The Permittee intends to irrigate the golf course with Class A water. However, the Permittee will have to first prove they can meet the requirements of Class A water.

When the Permittee can achieve Class A Reclaimed Water the golf course will receive most of the water. A 6-inch force main has been installed to send the flow to a holding pond at the golf course where it will be distributed throughout the golf course. All pipelines and irrigation equipment must be properly marked as containing non-potable reclaimed water.

Additional setback requirements apply to Class A through Class D for reclaimed water:

Requirement	Class D	Class A
Feet from reclaimed water sprayed to the property line or areas accessible to the public;	100 feet	0 feet
Feet from a lined pond used for reclaimed water storage to a potable well;	200 feet	100 feet
Feet from any reclaimed water pipeline to a drinking water pipeline or a potable well;	300 feet	50 feet to a well
Feet from an un-lined storage pond to any potable well.	1000 feet	500 feet

There are other restrictions that apply and may be found in the Water Reclamation and Reuse Standards, Article 13, Table 3. This table shown above contains an abbreviated version of that table.

Item number four above may apply to the use of the existing storage pond in the golf course for Class A water if there are wells within 500 feet. For spray irrigating Class D water, the existing site should have 100-foot setbacks to prevent spray from migrating off site into roadside ditches or onto other property. The setback distance shall be 300 feet between a reclaimed water pipeline to any potable water supply well or drinking water pipeline. Item number 3 applies to the water stored for irrigation for the present system (Class D) or the future system (Class A).

GEOLOGY

The soil beneath the existing pasture sprayfield site is very permeable according a hydrogeological investigation conducted for the Sunland Water District by Rongey Associates (Rongey, 1992). That report states that "the current Sunland sprayfield is positioned over a highly permeable, easterly trending, unconfined gravel aquifer approximately 2000 feet in width and 125± feet in thickness." Groundwater flow is easterly and total volume about 1100 acre feet of which the sprayfield contributes about 40-acre feet. The average rate of ground-water movement is expected to be about 2.5 feet per day. The sprayfield is located above the Dungeness gravel aquifer. A reasonable amount of groundwater information is available because of the great number of wells in the area within one half mile of the sprayfield and the great amount of studies that have been conducted in the Sequim Dungeness area.

The bulk of the Sunland development where the golf course is located (south of the existing sprayfield) is over a separate aquifer and geologic zone. This geologic zone is known as the Glacial and Interglacial Fluvial (GIF) deposits (Rongey, 1992). This aquifer appears to be deeper than the Dungeness gravel aquifer the sprayfield is located over. Ground water in the GIF aquifer is generally north easterly and appears to extend beneath the Dungeness Gravel aquifer. Another aquifer known as the Potholes appears to terminate at the north western edge of the sprayfield. The three ground water aquifers have limited hydraulic intercontinuity and ground water generally moves independently within each aquifer.

Estimates of ground water withdrawal and addition show that of the 1100 Acre Feet (AF) estimated to be flowing through the Dungeness Gravel aquifer, 275 AF are estimated to be withdrawn by domestic or irrigation uses down gradient (Rongey, 1992). The sprayfield was estimated to add back approximately 40 AF. It was also estimated that with ground water travel rate of approx. 2.5 feet per day, it takes two years for water from the sprayfield to reach the area of the Sunland and Sunland Shores community wells.

Recharge by Surface Percolation (Infiltration and Rapid Infiltration)--The Departments of Ecology and Health approvals will be required for any method of effluent disposal or reuse other than on the existing pasture. No other approvals for discharge locations have been granted. The minimum treatment required for groundwater recharge is Class A reclaimed water.

Use of rapid infiltration with reclaimed water will not be allowed under this permit. Because of the high permeability of the substrate and the proximity to ground and surface waters, the discharge likely would be considered a surface water discharge. A surface water discharge requires a National Pollution Discharge Elimination System (NPDES) permit. In addition, a water reuse permit requires the water to be put to use. Rapid infiltration may be viewed as disposal of effluent and not as being put to use. Therefore, a water reuse permit could not be issued for rapid infiltration without a clear need and desire by Washington State Fish and Wildlife, tribes, and the Department. Rapid infiltration requires a minimum of Class A nitrogen removal and may need to meet drinking water standards before being considered for approval.

During the winter season the treatment works must still dispose of the treated effluent. As stated in the Amendment No. 1 Wastewater Facility Plan (May, 2002), the existing pasture was to be utilized during the winter months when the golf course facilities did not need irrigation or during the dry season if the plant could not produce Class A quality effluent for any reason. This practice will need to continue regardless if the Class A proposal is eventually approved or not. If the Class A proposal is not approved, the Permittee will need to provide storage for the wet season.

The facility must meet groundwater quality standards or Class A Reclaimed Water for winter disposal or other discharge if the discharge is in excess of crop requirements. This problem can be solved by providing enough storage of finished reclaimed water through the non-irrigation season.

RESIDUAL SOLIDS

The treatment facilities remove solids during the treatment of the wastewater at the headworks (grit and screenings), and during the decant cycle of the SBRs, in addition to incidental solids (rags, scum, and other debris) removed as part of the routine maintenance of the equipment. Grit, rags, scum, and screenings are drained and disposed of as solid waste at the local landfill. Solids removed from the SBR are treated in a pair of aerobic digesters and stored in reed beds to further dry and cure until it can be removed. The Permittee also has sludge and liquid stored in the old facultative lagoons. After settling, the liquid from the lagoon is discharged back to the SBR headworks.

At the present time the Permittee does not have a plan for removing any biosolids from the facility lands and will need to have a plan under the new permit to remove the biosolids from both the facultative

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lagoon and the reed beds. The Permittee will need to apply for a Biosolids Permit from the Department, Solid Waste Program before any biosolids are removed from the site.

PERMIT STATUS

The previous permit for this facility was issued on September 11, 1979. The permit expired on September 11, 1984. The permit was administratively extended until a new permit could be written. Many elements of the old system covered under the old permit no longer apply since the system was rebuilt with SBRs in 1999.

An application for permit renewal was submitted to the Department on October 1992, again on March 24, 1999.

WASTEWATER CHARACTERIZATION

The old permit was for a completely different system—facultative lagoons, than the new system—SBRs. The SBRs were installed with a goal of achieving Class A reclaimed water through tertiary treatment. The facility last received an inspection on March 29, 2002. Because the facility was rebuilt in 1999 the following evaluation of the facility is from that time forward.

The concentration of pollutants in the discharge was reported in the discharge monitoring reports. The proposed wastewater discharge prior to infiltration or land application is characterized for the following parameters:

Table 1: Wastewater Characterization (Sept 2000 – Oct 2002)

Parameter	Concentration	Design Criteria or Other Limits
Flow (mgd)	0.099 avg 0.119 max	0.162 avg. monthly (max. month) 0.130 avg. dry weather design 0.295 peak day flow 0.470 peak four hour flow
BOD ₅ (monthly conc. mg/L)	4.5 avg., 24 max	Technology Based limit: 30 mg/L avg monthly
BOD ₅ (weekly conc. mg/L)	8.9 avg., 24 max	Technology Based limit: 45 mg/L avg weekly
TSS (monthly conc. mg/L)	4.7 avg., 18.8 max	Technology Based limit: 30 mg/L avg monthly
TSS (weekly conc. mg/L)	7.8 avg. 18.8 max	Technology Based limit: 45 mg/L avg weekly
Total Coliform (org./100ml)	86 max in 7 day running medians 90.6 95 th percentile 139 over all max	See below for total coliform reclaimed water limits
Residual chlorine (mg/L)	1.3 avg.	Recommended limit:

		0.5 monthly, 0.75 weekly
pH (Standard Units)	6.1 min – 8.8 max	Technology based limit 6 – 9 standard units

Reclaimed water limits for total coliform:

Class D: 240 org/100 ml as 7day running median;

Class C: 23 org/100 ml as 7-day median and 240 org/100 ml max in any sample;

Class B & Class A: 2.2 org/100 ml as 7-day median and 23 org/100 ml max in any sample.

The facility had no difficulty staying within technology based limits for BOD₅ and TSS after an initial start-up period (more will be discussed about these technology based versus water quality limits in the next section). The facility has been well within design limits for flow and has kept within technology based limits for pH. The technology standard for secondary treatment for fecal coliform is 200 org./100 ml on a monthly basis. It is therefore recommended that the facility also limit fecal coliform to 200 org/100 ml as well as the total coliform.

The facility could not, however, meet total coliform limits for Class C reclaimed water (23 org/100 ml as seven-day median). The facility also had difficulty meeting recommended residual chlorine limits. Ground water limits for Chloride salts are 250 mg/L. The facility has plans to install an Ultra-Violet (UV) disinfection system. No date has been provided for UV installation. The facility will therefore have interim limits to meet Class D reclaimed water at the existing sprayfield and eventually Class A reclaimed water at the golf course. This restriction limiting the facility to Class D will last until the facility has gone through at least a six month period without water quality violations at a higher Class level and the facility has met all other requirements to meet the higher Class. A modification of the permit or a new permit will be required before any other uses of the water are allowed.

The permit requires the facility to meet mass limits for BOD and TSS. Monthly effluent mass loadings (lbs/day) were calculated as the maximum monthly design flow (0.162 MGD) x Concentration limit (30 mg/L) x 8.34 (conversion factor) = 40 lbs/day

The weekly average effluent mass loading is calculated as 1.5 x monthly loading (40 lbs/day) = 60 lbs/day.

The facility will be required to stay within these mass limits.

SEPA COMPLIANCE

The facility has complied with State Environmental Policy Act (SEPA) and filed an environmental checklist for upgrade to Class A water. This upgrade includes all the current design changes made to the facility in 1999.

PROPOSED PERMIT LIMITATIONS

State regulations require that limitations set forth in a waste discharge permit must be either technology- or water quality-based. Wastewater must be treated using all known, available, and reasonable treatment (AKART) and not pollute the waters of the State. The minimum requirements to demonstrate compliance with the AKART standard are derived from the *Water Reclamation and Reuse Standards*, the *Design Criteria for Municipal Wastewater Land Treatment*, and Chapter 173-221 WAC.

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The permit also includes limitations on the quantity and quality of the wastewater and reclaimed water applied to the sprayfield that have been determined to protect the quality of the ground water. (The approved engineering report includes specific design criteria for this facility. Water quality-based limitations are based upon compliance with the Ground Water Quality Standards (Chapter 173-200 WAC).

The more stringent of the water quality-based or technology-based limits are applied to each of the parameters of concern. Each of these types of limits is described in more detail below.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

All waste discharge permits issued by the Department must specify conditions requiring available and reasonable methods of prevention, control, and treatment of discharges to waters of the state (WAC 173-216-110). The following permit limitations are necessary to satisfy the requirement for AKART:

As shown in Table 1 above, the facility is able to comply with the standard technology based limits for BOD and TSS. The technology limits and Class D requirements are for effluent as follows:

Technology Based Secondary Standards

Parameter	Monthly Average	Weekly Average
BOD ₅	30 mg/L, 40 lbs/day	45 mg/L, 60 lbs/day
	May not exceed fifteen percent (15%) of the average influent concentration	
TSS	30 mg/L, 40 lbs/day	45 mg/L, 60 lbs/day
	May not exceed fifteen percent (15%) of the average influent concentration	
Fecal coliform	200 org./100 ml	400 org./100 ml
pH	Shall not be outside the range of 6 to 9 standard units	

The BOD, TSS, and pH requirements are technology based criteria. The following limits for total coliform, chlorine, and dissolved oxygen are from Class D reclaimed water requirements. The facility will not be able to meet the storage requirements for Class D, but should be able to meet the following limits.

Class D Required Limits In Addition To Secondary Standards

Total Coliform	240 org/100 ml as 7day running median
Dissolved Oxygen	0.5 mg/L minimum
Chlorine	1 mg/L minimum after 30 min. before distribution
	0.5 mg/L minimum at sprinkler heads

In addition to the standards listed above, the facility will be required to meet Class A reclaimed water standards as final limits as follows:

Class A Required Final Limits in Addition to Secondary Standards

Total Coliform	2.2 org/100 ml as a 7day running median and 23 org/100 ml not exceeded in any sample
Turbidity	2 NTU Average monthly 5 NTU Sample maximum

The Permittee has stated that they will be able to achieve the Class A by March 2006. The permit will therefore have interim limits that will last until the final Class A limits can be achieved in 2006.

GROUND WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's ground waters including the protection of human health, WAC 173-200-100 states that waste discharge permits shall be conditioned in such a manner as to authorize only activities that will not cause violations of the Ground Water Quality Standards. Drinking water is the beneficial use generally requiring the highest quality of ground water. Providing protection to the level of drinking water standards will protect a great variety of existing and future beneficial uses. Because the reclaimed water will be phased in, starting with Class D, the Permittee will be required to meet the Ground Water Quality Standards as well.

The following ground water quality criteria are to be met in ground water and monitored in wells as opposed to the technology based limits which are to be met at the point of discharge from the treatment works. Monitoring for both technology and ground water will be required in the permit.

Applicable ground water criteria as defined in Chapter 173-200 WAC and in RCW 90.48.520 for this discharge include the following:

Table 2: Ground Water Quality Criteria

Table 2: Ground Water Quality Criteria	
Primary Drinking Water Criteria	Sample Maximum^a
Nitrate as N	10 mg/L
Nitrite as N	1 mg/L
Arsenic	50 µg/L
Cadmium	5 µg/L
Chromium	100 µg/L
Fluoride	2 mg/L
Mercury	2 µg/L
Nickel	100 µg/L
Total Trihalomethanes (TTHM)	0.10 mg/L
Other Groundwater Criteria	Sample Maximum^a
Total Dissolved Solids	500 mg/L
Chloride	250 mg/L
Sulfate	250 mg/L
Copper	1300 µg/L

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Lead	15 µg/L
Manganese	50 µg/L
Silver	100 µg/L
Zinc	5000 µg/L

The Department has reviewed existing records and is unable to determine if background ground water quality is either higher or lower than the criteria given in Chapter 173-200 WAC; therefore, the Department will use the criteria expressed in the regulation in the proposed permit. The discharges authorized by this proposed permit are not expected to interfere with beneficial uses.

There are several wells in the vicinity of the sprayfield that have been used for monitoring and will need to continue to be used for monitoring under the new permit. The following wells have been used for monitoring (a map of the well locations may be found in Appendix C:

Table 3: Wells in the Immediate Vicinity of the Sunland Sprayfield

Well No.	Owner	Elev.	Depth	Water Level	Type	Remarks
6R3	White	50	49	5	Drilled	Upgradient sprayfield monitoring well perf 45-49'
6R4	Bratoria	50	60		Drilled	Upgradient Sprayfield monitoring in early 1980s
5N1	Sunland NW	44.3	22	14.25	Drilled	Downgradient sprayfield monitoring well
5N2	Sunland NE	43.9	20	15.08	Drilled	Downgradient sprayfield monitoring well
5N3	Sundt	46	25		Drilled	Downgradient sprayfield perimeter sampling well
5P1	McInnes	43	25		Driven	Cross gradient perimeter sampling well
5P2		35.6	31	11.4	Driven	Downgradient sprayfield water level monitoring well

Only the wells in the immediate vicinity of the sprayfield are shown above (see map of well locations in Appendix C). Many other wells are available for monitoring and have been recorded elsewhere. Records appear to show that rainfall has at least as great an affect as irrigation on water levels beneath the sprayfield (Rongey, 1992). Nitrate levels, however, were climbing in the down gradient wells in the early 1990s. Spikes in nitrate levels appeared to coincide with high nitrate applications.

From 1996 to 2002, total nitrogen effluent levels from the sewage treatment plant do not appear to have affected the nitrogen in the down gradient wells. (See table and graph of nitrogen in wells in Appendix C). Most of the total nitrogen seen in the wells was comprised of nitrates. Since October 2000, nitrogen discharged from the sewage treatment plant has decreased dramatically. Total nitrogen discharged from January 1996 to August 2000 averaged 27 mg/L and from October 2000 to June 2002 averaged 4 mg/L.

This is presumably due to the installation of the SBRs. It does not appear that a correlation between increased nitrogen discharged and increased nitrogen in the down gradient wells could be made at this time. The one up gradient well 6R3 consistently had higher nitrogen values than down gradient wells. Well 6R4 does not appear to be viable for monitoring.

The information collected from wells 5N1 and 5N2 may have limited value. Monitoring well 5P1 appears to be neither up gradient nor down gradient of Sunland's irrigation site and information collected from this well will likely be of limited value. The static water levels should be monitored in all five wells on a regular basis to determine if the ground water flow direction varies seasonally. Based on current information, monitoring wells 6R3 and 5N3 appear to be the most suitable monitoring points for determining up gradient and down gradient water quality impacts from Sunland's current sprayfield activities.

The SBRs should be operated to increase nitrification/denitrification in order to reduce the nitrate levels in the discharge.

If the Permittee completes their upgrade to Class A reclaimed water and irrigates the golf course, additional groundwater monitoring may be required in the golf course area.

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are specified to verify that the treatment process is functioning correctly, that ground water criteria are not violated, and that effluent limitations are being achieved (WAC 173-216-110).

INFLUENT AND EFFLUENT MONITORING

The monitoring and testing schedule is detailed in the proposed permit under Condition S2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

GROUND WATER MONITORING

The monitoring of ground water at the site is required in accordance with the Ground Water Quality Standards, Chapter 173-200 WAC. The Department has determined that this discharge has a potential to pollute the ground water. Therefore, the Permittee is required to evaluate the impacts on ground water quality. Monitoring of the ground water at the site boundaries and within the site is an integral component of such an evaluation.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-216-110).

FACILITY LOADING

The design criteria for this treatment facility are taken from the Amendment No. 1 Wastewater Facility Plan for Sunland dated May 2002 and personal communication with Engineering Consultants Northwest (Dominczyk, 2002). These design criteria are as follows:

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Monthly average flow (max. month):	0.162 mgd
Monthly average dry weather flow:	0.130 mgd
Peak day flow:	0.295 mgd
Instantaneous peak flow (peak four hour):	0.470 mgd
BOD influent loading:	220 lbs/day
TSS influent loading:	540 lbs/day

Require average monthly flow in permit

The permit requires the Permittee to maintain adequate capacity to treat the flows and waste loading to the treatment plant [WAC 173-216-110(4)]. The Permittee is required to submit an engineering report when the plant reaches 85 percent of its flow or loading capacity. For significant new discharges, the permit requires a new application and an engineering report [WAC 173-216-110(5)]. The facility has plenty of capacity at this time. Therefore, the permit will not require a new facility plan unless loading to the plant changes.

OPERATIONS AND MAINTENANCE

The proposed permit contains Condition S.5 as authorized under RCW 90.48.110, WAC 173-220-150, Chapters 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

RESIDUAL SOLIDS HANDLING

To prevent water pollution the Permittee is required in permit condition S6. to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and State Water Quality Standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503 and by the Department under Chapter 70.95J RCW and Chapter 173-208 WAC. The disposal of other solid waste is covered under the Statewide Biosolids Permit administered by the Department.

Requirements for monitoring sewage sludge and recordkeeping are included in this permit. This information will be used by the Department to develop or update local limits and is also required under 40 CFR 503.

PRETREATMENT

WAC 173-216-110 requires that the list of prohibitions in WAC 173-216-060 be included in the permit.

Federal pretreatment requirements in 40 CFR 403 and Sections 307(b) and 308 of the Clean Water Act apply to this facility. Therefore, notification to the Department is required when pretreatment prohibitions are violated and when new sources of commercial or industrial wastewater discharge are added to its system. The Sunland development is residential and does not accept any industrial or commercial wastewater. The permit will therefore not require an industrial user survey.

GENERAL CONDITIONS

General Conditions are based directly on state laws and regulations and have been standardized for all industrial waste discharge to ground water permits issued by the Department.

Condition G1 requires responsible officials or their designated representatives to sign submittals to the Department. Condition G2 requires the Permittee to allow the Department to access the treatment system, production facility, and records related to the permit. Condition G3 specifies conditions for modifying, suspending or terminating the permit. Condition G4 requires the Permittee to apply to the Department prior to increasing or varying the discharge from the levels stated in the permit application. Condition G5 requires the Permittee to submit written notice of significant increases in the amount or nature of discharges (typically new industrial discharges) into the sewer system tributary to the permitted facility. Condition G6 requires the Permittee to construct, modify, and operate the permitted facility in accordance with approved engineering documents. Condition G7 prohibits the Permittee from using the permit as a basis for violating any laws, statutes or regulations. Condition G8 requires application for permit renewal 60 days prior to the expiration of the permit. Condition G9 requires the payment of permit fees. Condition G10 describes the penalties for violating permit conditions.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, and to protect human health and the beneficial uses of waters of the state of Washington. The Department proposes that the permit be issued for five years.

REFERENCES FOR TEXT AND APPENDICES

Carey, Barbara M., 1995. Evaluation of the Potential for Ground Water Contamination at Sunland Land Application Site. Washington State Department of Ecology. Publication No. 95-312.

Dominczyk, Joseph, Engineering Consultants Northwest, Inc. December 19, 2002, Personal Communication.

Engineering Consultants Northwest (ECNW), Inc., May 2002, Amendment No. 1, Wastewater Facility Plan Treatment Plant Upgrade to Class A Water, Clallam County, Washington. Prepared for: Sunland Water District. Federal Way, Washington.

Faulkner, S.P., Patrick Jr., W.H., Gambrell, R.P., May-June, 1989. Field Techniques for Measuring Wetland Soil Parameters, Soil Science Society of America Journal, Vol. 53, No.3.

Holtrop, Joe. 2003, March 17. Clallam Conservation District. Personal telecommunication.

Rongey and Associates, Hydrogeology, February 1992. Hydrogeological Investigations Sunland Comprehensive Wastewater System Plan, Sunland Water District.

Washington State Department of Ecology, 1993. Guidelines for Preparation of Engineering Reports for Industrial Wastewater Land Application Systems, Ecology Publication # 93-36. 20 pp.

Washington State Department of Ecology and Department of Health, 1997. Water Reclamation and Reuse Standards, Ecology Publication # 97-23. 73 pp.

Washington State Department of Ecology.

Laws and Regulations(<http://www.ecy.wa.gov/laws-rules/index.html>)

Permit and Wastewater Related Information
(<http://www.ecy.wa.gov/programs/wq/wastewater/index.html>)

Washington State Department of Ecology, 1993. Guidelines for Preparation of Engineering Reports for Industrial Wastewater Land Application System. Publication No. 93-36.

Washington State Department of Ecology, 1996. Implementation Guidance for the Ground Water Quality Standards, Ecology Publication # 96-02.

Washington State University, November, 1981. Laboratory Procedures - Soil Testing Laboratory. 38 pp.

APPENDICES

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page one of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on July 14, 2002, and July 21, 2002, in the *Peninsula Daily News* to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department will publish a Public Notice of Draft (PNOD) on August 20, 2003, in the *Sequim Gazette* to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Administrator
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775.

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the 30-day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-216-100). Public notice regarding any hearing will be circulated at least 30 days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing.

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within 30 days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (360) 407-6554, or by writing to the address listed above.

This permit was written by Eric Schlorff.

APPENDIX B--GLOSSARY

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation--The average of the measured values obtained over a calendar month's time.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD₅--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of the collection or treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring --Uninterrupted, unless otherwise noted in the permit.

Distribution Uniformity--The uniformity of infiltration (or application in the case of sprinkle or trickle irrigation) throughout the field expressed as a percent relating to the average depth infiltrated in the lowest one-quarter of the area to the average depth of water infiltrated.

Engineering Report--A document, signed by a professional licensed engineer, which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Soil Scientist--An individual who is registered as a Certified or Registered Professional Soil Scientist or as a Certified Professional Soil Specialist by the American Registry of Certified Professionals in Agronomy, Crops, and Soils or by the National Society of Consulting Scientists or who has the credentials for membership. Minimum requirements for eligibility are: possession of a baccalaureate, masters, or doctorate degree from a U.S. or Canadian institution with a minimum of 30 semester hours or 45 quarter hours professional core courses in agronomy, crops or soils, and have 5,3,or 1 years, respectively, of professional experience working in the area of agronomy, crops, or soils.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

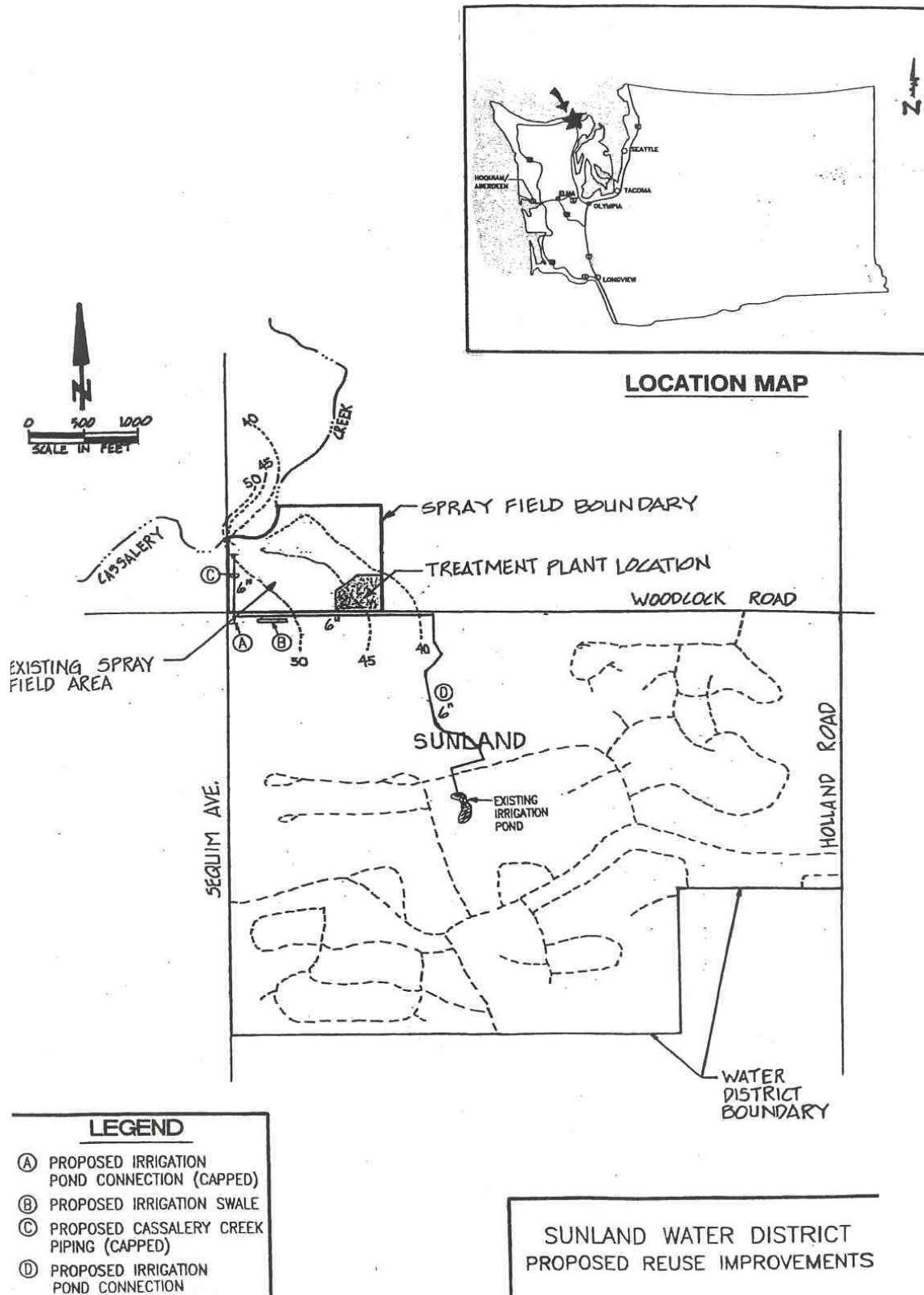
Total Coliform Bacteria--A microbiological test which detects and enumerates the total coliform group of bacteria in water samples.

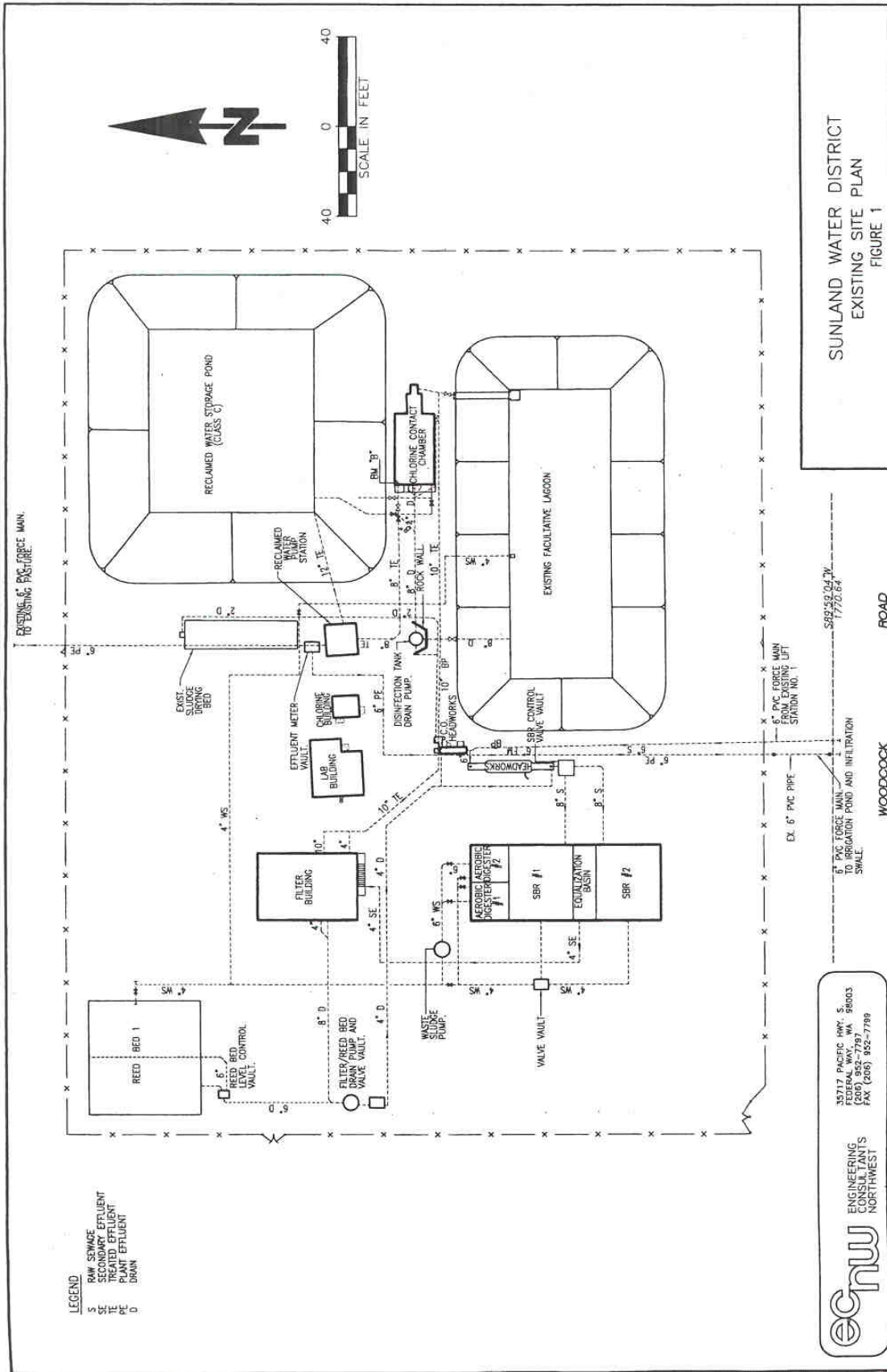
Total Dissolved Solids--That portion of total solids in water or wastewater that passes through a specific filter.

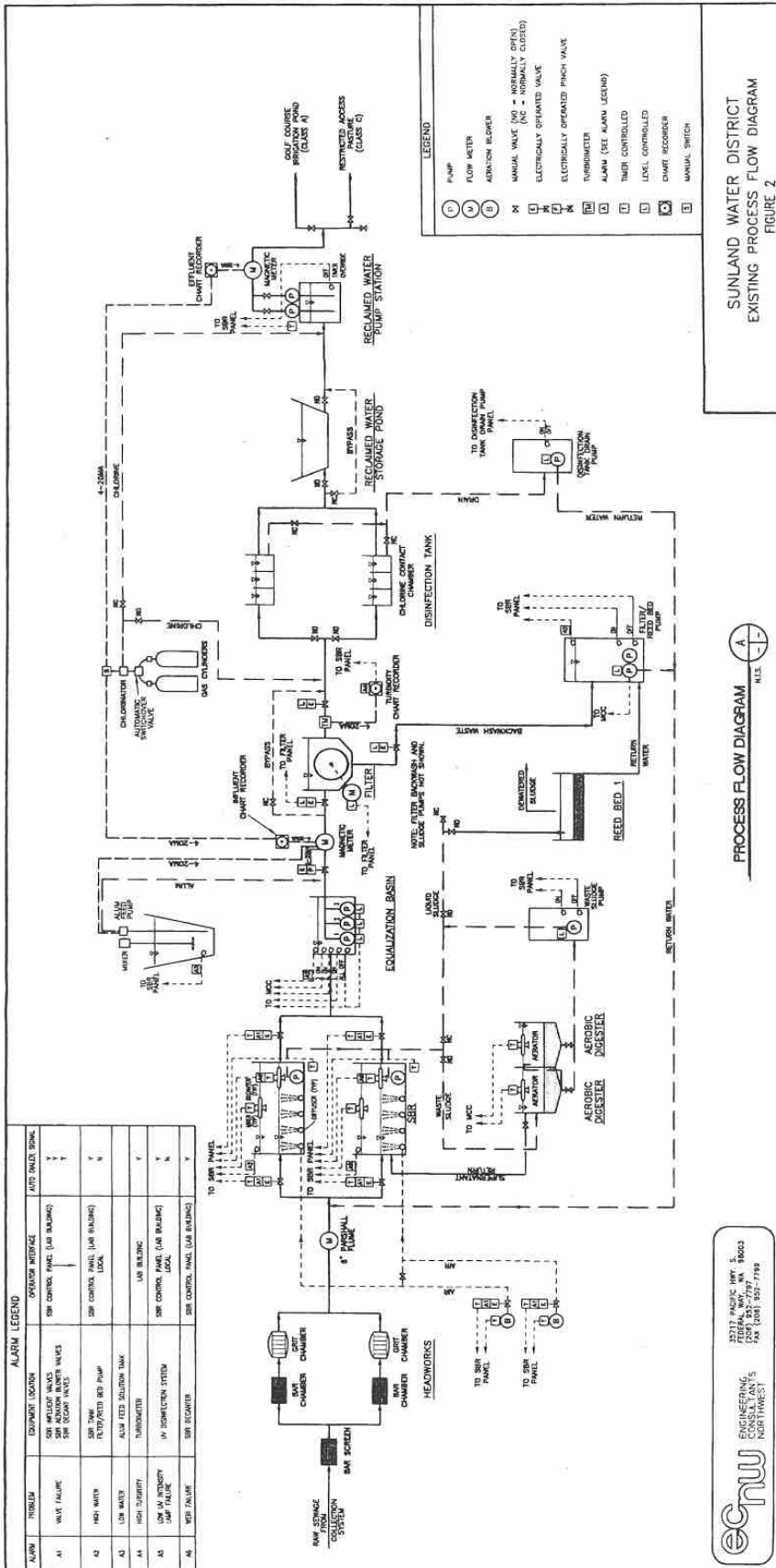
Total Suspended Solids (TSS)--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Water Quality-based Effluent Limit--A limit on the concentration of an effluent parameter that is intended to prevent pollution of the receiving water.

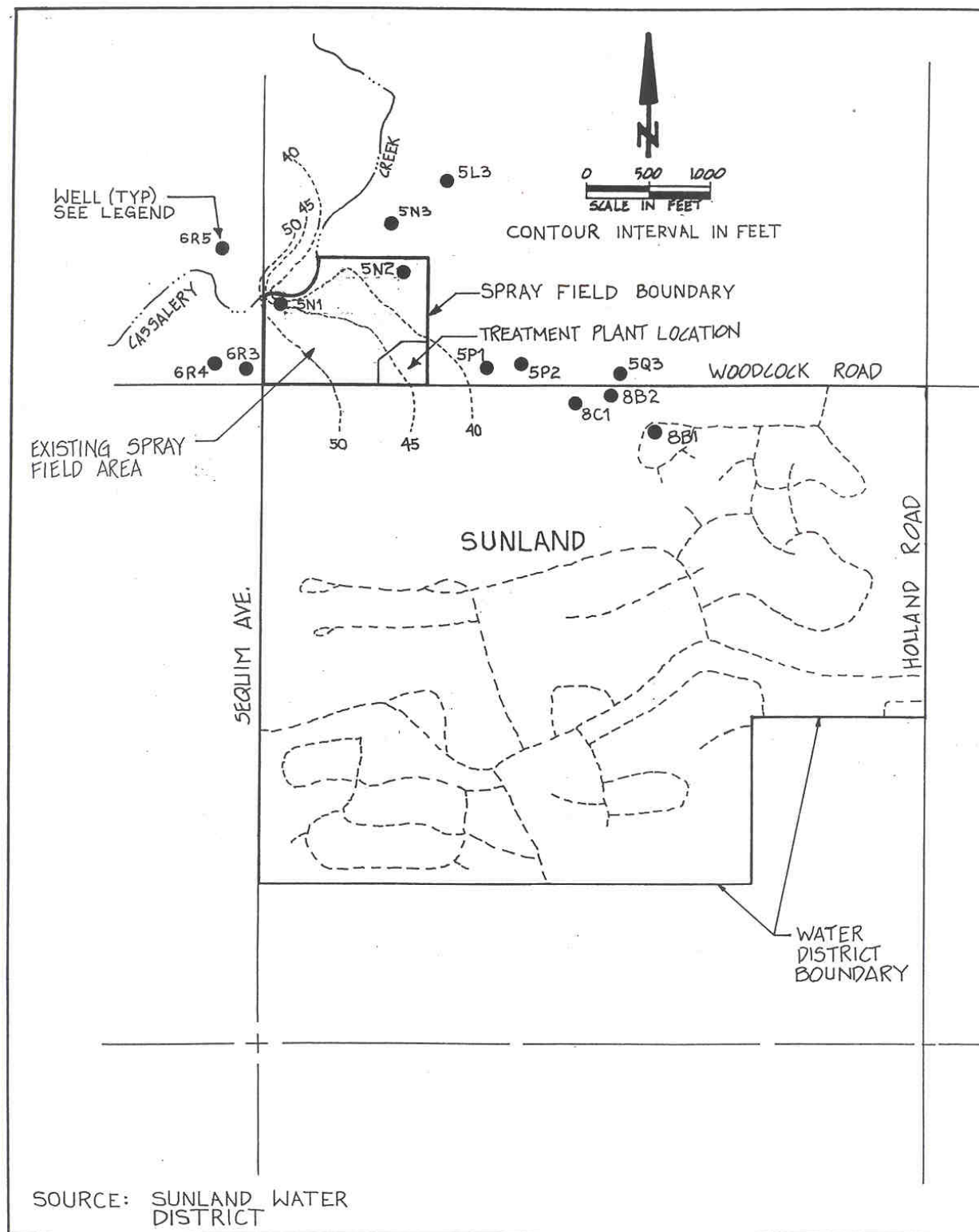
APPENDIX C--TECHNICAL CALCULATIONS

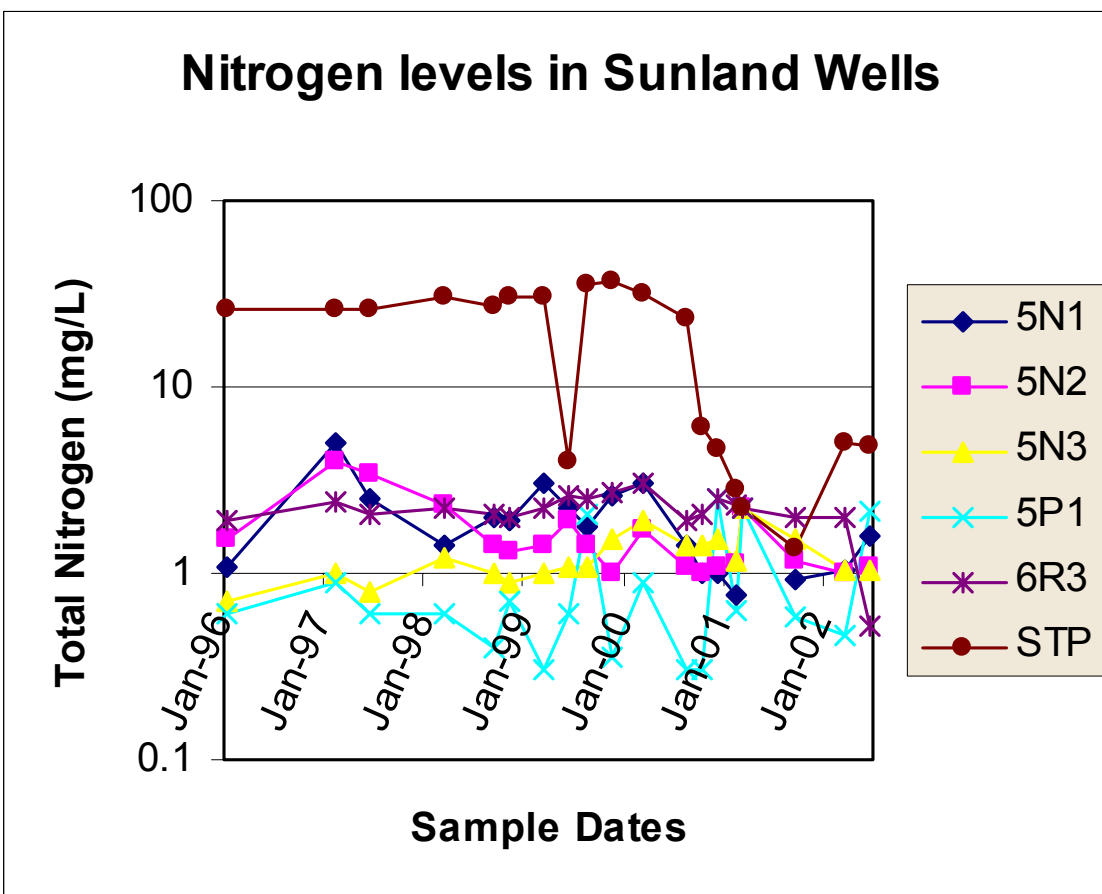






STATE WASTE DISCHARGE PERMIT NO. ST 6003
SUNLAND WATER DISTRICT





Sunland wells and STP total nitrogen

Date	5N1	5N2	5N3	5P1	6R3	STP Effluent
1/16/96	1.1	1.5	0.7	0.6	1.9	26
2/24/97	5.1	4	1	0.9	2.4	26
6/23/97	2.5	3.4	0.8	0.6	2.1	26
3/9/98	1.4	2.3	1.2	0.6	2.2	30
9/14/98	2	1.4	1	0.4	2.1	27
11/10/98	1.9	1.3	0.9	0.7	2	30
3/1/99	3	1.4	1	0.3	2.2	30
6/21/99	2.2	1.9	1.1	0.6	2.6	4
8/16/99	1.8	1.4	1.1	2.1	2.5	36
11/10/99	2.6	1	1.5	0.35	2.7	37
3/7/00	3.1	1.7	1.9	0.9	3	32
8/15/00	1.4	1.1	1.4	0.3	1.9	23
10/31/00	1	1	1.4	0.3	2.1	6
12/18/00	0.99	1.1	1.5	2.5	2.5	4.6
2/14/01	0.75	1.13	1.17	0.62	2.32	2.87
3/23/01		2.22	2.22	2.22	2.22	2.22
9/20/01	0.93	1.16	1.52	0.59	2.02	1.35
3/14/02	1.04	0.99	1.02	0.47	2.02	5
6/14/02	1.56	1.1	1.04	2.12	0.52	4.74

APPENDIX D--RESPONSE TO COMMENTS

Sunland Response to Comments September 24, 2003

Fact Sheet:

Comment 2A:

"History," Eighth sentence. The current statement still does not fully reflect the District's efforts to upgrade the treatment facility. We propose the sentence be revised to include the wording contained in the June 20, 2003, letter (See Item 2C).

Note: The eighth sentence under history reads: "The facility was rebuilt without the Department's approval of engineering plans and specifications." Sunland suggested the following language: "Through a misunderstanding the facility was upgraded prior to obtaining the Department's approval of the construction documents. The Department had several concerns regarding a portion of the design. None of the completed improvements were among those concerns."

Response 2A:

The Department disagreed with the content of the rewritten history, therefore, the Department kept the original language. We felt it was important to include the information contained in the original paragraph.

Comment 3A:

"Treatment Processes" Fourth paragraph, third and fifth sentences (Page 3). The growing season in the Dungeness Valley is longer than most other locations in Western Washington. This is due to the sunnier weather in the area and the marine environment provided by the nearby Straits of Juan de Fuca. This fact is borne out by the grass cutting requirements of the community's golf course and of the spray field site. It was also confirmed by a telephone conversation with a representative of the Clallam County Conservation District at the time the approved Facility Plan was being prepared. In addition, the SBRs operate with a nitrogen removal step in the process. The success of the plant in reducing the effluent nitrogen concentration can be seen in the graph and table presented on page 23 of the Fact Sheet. Furthermore, the local farmer who harvests the grass from the spray field site has suggested to the District over the last few years that supplemental nitrogen needs to be applied on the field to promote plant growth. This suggestion was backed up by the results of an analysis of the site soil showing low nitrogen levels. Finally, the document itself states that, "It does not appear that a correlation between increased nitrogen discharged and increased nitrogen in the down gradient wells could be made at this time" (page 10, fourth paragraph). The blanket limitation of March through October Class D irrigation is not based on the actual history in the area. Therefore, the District requests the stated time frame be removed from the document. The District concurs with the statement that they collaborate with the local conservation district in establishing an application procedure for the Class D water.

Response 3A:

As stated earlier (what do we mean by stated earlier—earlier in the text or in previous discussions with Sunland?), the Department already allowed a longer growing season for the sprayfield than is normally allowed in western Washington. We also consulted the Clallam Conservation District. However, a complete crop management plan prepared by a soil scientist qualified to do such a plan or by the Conservation District would be necessary to determine loadings to the sprayfield. The seasonal limit for applying effluent to the sprayfield will remain. Section S9.E.1 requires the Permittee to submit a report on irrigation use, and hydraulic and nutrient loading. A cautionary note in regards to your comment about applying nitrogen fertilizer to the sprayfield to promote grass growth: if nitrogen is detected in the monitoring wells this may be seen as a violation of the permit because there is no way to distinguish between a farmer's application of fertilizer and the treatment plant's discharge of nitrogen. For this reason a crop management plan is necessary to ensure that only the nutrients that can be taken up by the plants are applied to the field.

Comment 4A:

"Distribution System (Sprayfield) and Geology." Third paragraph, third sentence (Page 4). We are still unclear about the setback requirements for a reclaimed water pipeline to any potable water supply well or to a drinking water pipeline. The 300-foot distance appears excessive since raw sewage force mains can be considerably closer to these facilities. The District requests this item be confirmed.

Response 4A:

The setback for reclaimed water is correct. Setback requirements are clearly detailed in the Water Reclamation and Reuse Standards (article 12, section 4, pages 31-33) for all reclaimed water classes. The setback for Class D is 300 feet to a potable water supply well, for Class A it is 50 feet to a potable water supply well. The separation to a drinking water pipeline is 10 feet horizontal and 18 inches vertical for both classes. These setbacks are too long to list in the permit. Some setbacks may be more stringent than the case of raw sewage force mains you discussed.

Permit:

Comment 7A:

"Effluent Limitations. Chlorine Residual Point of Compliance". The proposed sprinkler head compliance point will be awkward for the plant operators. The Reclaimed Water Pumping Station wet well is proposed as an alternative location. There is a relatively short section of force main between the wet well and the sprinkler heads, which has an effluent residence time of approximately two minutes. The wet well could be used as the routine sampling point with an occasional sample taken at the spray heads, as needed by the operator.

Response 7A:

The chlorine point of compliance is intended to be at the distribution end of the system. This is part of the reclaimed water standards. Therefore, a tap may need to be installed in the lines to allow a sample to be taken at the sprayfield and later at the golf course.

Comment 7B:

"Effluent Limitations." Footnote c. The proposed sampling point for BOD and TSS is proposed to be after the SBR's and before coagulation, filtration or disinfection. The only logical sample point satisfying this criteria is within the Equalization Basin. We do not believe the basin is an appropriate sampling location because of the varying water levels and the extreme agitation in the basin during the SBR decant operations. Secondly, the depth of the basin makes use of a composite sampler difficult. The disinfection system outlet is suggested as the most logical location considering the flow stream at this point is the most representative of the effluent being discharged from the facility. We understand the permit for the City of Sequim treatment facility requires sampling at a similar location.

Response 7B:

This point will not be changed. The reclaimed water standards are specific on this point. The location for sampling should be after secondary treatment but before the final processes as specified in the Water Reclamation and Reuse Standards. This is to assure the intermediary processes are effective. A sampling point may need to be engineered and installed. This sampling point between secondary treatment and coagulation is in addition to the sampling at the final effluent.

Comment 8A:

"Water Quality Limitations. Final Effluent Limits." First paragraph, third and fourth sentences. The permit states that six months of Class A operation is required before the water can be discharged "to land." We assume this means the restriction applies to designating the water as "Class A" and using it on lands other than the pasture until the Department is satisfied consistent Class A water can be produced.

Response 8A:

The Permittee's assumption is correct. However, we will not consider the water to be "Reclaimed Class A" water until it has met the standards for Class A for six months as outlined in the draft permit.

Comment 9A:

"Class D and Class A Reclaimed Water Limitations - Distribution System Point of Compliance". See Item 7A.

Response 9A:

This point was answered under point 7A above. The monitoring point will be kept in place.

Comment 9B:

"Class D and Class A Reclaimed Water Limitations. Footnote c." See Item 7B.

Response 9B:

As noted above under 7B, the point of compliance will not be changed.

Comment 9C:

"Disinfected - Class D Reclaimed Water." There is not justification for limiting Class D irrigation to the months of March through October. Please see the response for the Fact Sheet Item 3A. Any restriction established should take into account the longer growing season in the area and include as a basis an evaluation of the spray field application agronomic rates and the facility's ability to produce an effluent meeting the groundwater quality standards.

Response 9C:

This item will stay unchanged. As noted in point 3A, the growing season in the rest of western Washington is limited to May through October. Based on information for this site, the Department has broadened the application period for Class D to March through October. Class D reclaimed water must be limited to a growing season. The water must be taken up by the plant and not just recharging groundwater. Until the Permittee contracts with the Conservation District for an official crop management plan or hires a soil scientist with expertise in crop management to determine nutrient uptake, and hydraulic loading, a longer growing season will not be considered. Section S9.E.1 of the permit requires such a report to be filed that will help determine acceptable sprayfield loadings. The alternative is to irrigate with Class A reclaimed water which does not have the seasonal restrictions.

Comment 12A:

"Monitoring Requirements. Influent and Effluent Monitoring." Pages 12 and 13. It is stated on page 11 of the Fact Sheet, under "Monitoring Requirements - Influent and Effluent Monitoring" that the:

"Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants and cost of monitoring."

The amount and frequency of sampling required under the permit is significantly greater than that currently required which provides a good representation of conditions at the facility. The District's service area is composed entirely of residential properties except for the golf course pro shop. The District has no commercial or industrial customers; the golf course only has a snack bar with a small grille. The residential customers are primarily senior citizens. There is not a great variation in the characteristics of the wastewater; certainly not enough to warrant increased level's of influent flow testing. For instance, the permit requires BOD and TSS testing twice per week. The District believes weekly testing of these parameters is sufficient to adequately determine the influent wastewater strengths.

In regard to effluent monitoring, the permit requires the following:

BOD		2/week
TSS		7/week
Total Nitrogen		Weekly
Temperature	(Secondary Effluent)	Daily
	(Reclaimed Water)	Daily

The operating history of the plant over the last three years has shown the effluent BOD, TSS, and pH to have consistently met the requirements of the Department. It has also shown a significant reduction in the effluent total nitrogen concentration. In addition, the value of the secondary effluent temperature is questionable as far as permit monitoring. We can understand the operator possibly measuring the temperature' for his own use in troubleshooting a filtration problem. The permit requires monitoring the temperature of the reclaimed water leaving the facility. The increased monitoring required by the permit is counter to the spirit of the statement that the monitoring requirements take into account "the quantity and variability of the discharge," "past compliance," and "cost of monitoring." The plant operators have estimated the monitoring requirements listed in the draft permit will require approximately 60 man-hours per week to complete. This is a 50 percent increase over the current situation. Compliance with the permit will require the District to hire an additional employee at a cost to each and every customer of more than \$6 per month. This figure does not take into account the costs for additional laboratory supplies and chemicals.

A more reasonable schedule for monitoring of these parameters follows:

BOD	1/week
TSS	1/week
Total Nitrogen	1/month
Temperature (Reclaimed Water)	Daily

Response 12A:

The monitoring specified in S2 part A and B represents the minimum recommended by the Department's policies. The monitoring in the previous permit is outdated, for a different type of system and does not take into account the applicants request for reclaimed water. Reclaimed water does require more monitoring. Monitoring for temperature and the other parameters will remain as specified in the permit.

Comment 13A:

"Monitoring Requirement." Footnote to Interim and Final Effluent Monitoring. It is required that the secondary effluent be sampled after the Equalization Basin but prior to coagulation. See the discussion under Item 7A of the draft permit.

Response 13A:

The footnote will remain. As noted in the response to comment 7A the points of compliance will remain as shown in the draft permit.